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Increased Production of Farm Crops from Early Sowing

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V.—*Increased Production of Farm Crops from Early Sowing.*

By WM. SAUNDERS, LL.D., F.L.S., etc.,

Director of Dominion Experimental Farms.

(Read May 24th, 1905.)

Among the chief factors which influence the volume of agricultural crops from year to year are, the proper preparation of the soil, a sufficient supply of plant food, favourable weather for the growth and ripening of the crop, the selection of plump and well matured seed of the best and most productive sorts, and early sowing. It is to the influence of the last named factor which is to a large extent controllable by the farmer that I wish to call attention at this time.

It is generally conceded that the farmer who makes a practice of sowing his seed at the earliest opportunity in the spring, after the land is in suitable condition, realizes as a rule the best returns, but the extent to which the crop is influenced by this practice has seldom been fully realized.

A series of experiments was began in 1890 and continued for ten years with plots of wheat, barley and oats for the purpose of ascertaining the proportion of loss which occurs when sowing is unnecessarily delayed. The land chosen for these tests was as uniform in character as could be found, a sandy loam in a fair state of fertility. For the first five years thirty-six plots of one-tenth acre each were used which were so laid out as to have a space between them of three feet each, 12 of these were devoted to wheat, 12 to oats and 12 to barley. Two varieties of each sort of grain was used and there were six sowings of each. For the second five years an additional 12 plots were devoted to peas, making the number 48 in all. The first sowing in each case was made as early as practicable, as soon as the land was in fit condition to receive the seed, and the subsequent sowings, until six sowings had been made, were a week apart. The arrangement of the plots was changed each year so as to avoid growing the same kind of grain on the same land for two years in succession. Careful notes have been taken each year and the grain from all the plots has been harvested and threshed separately. The very earliest sowing has not averaged quite as large a yield as the second sowing but beyond this, delay has resulted in loss, the loss becoming more serious as the delay has been greater. The average of the experiments with wheat, oats and barley for ten years are shown in the statements which follow.

With wheat delay of one week beyond the period named has entailed an average loss of over 30 per cent, two weeks 40 per cent, three weeks 49 per cent and four weeks 56 per cent of the crop.

With oats a delay of one week has caused an average loss of 15 per cent, two weeks 22 per cent, three weeks 32 per cent and four weeks 48 per cent.

In the case of barley a delay of one week has resulted in an average loss of 23 per cent, two weeks 27 per cent, three weeks 40 per cent and four weeks 45 per cent.

With pease, which have been tested for only five years, the loss of crop from delay in sowing has been less. About a week after the ground is in condition to make seeding practicable, appears to be the most favourable time for sowing. Beyond this a delay of one week has reduced the crop 4 per cent, two weeks 12 per cent, three weeks 22 per cent and four weeks 30 per cent.

The following are the average crops which have been obtained during the full period these tests have been continued, that is ten years with the oats, barley and spring wheat, and five years with pease:—

TESTS CONTINUED FOR TEN YEARS.									TESTS CONTINUED FOR FIVE YEARS.		
Oats.	Average Yield per Acre.		Barley	Average Yield per Acre.		Spring Wheat.	Average Yield per Acre.		Pease.	Average Yield per Acre.	
	Bus.	Lbs.		Bus.	Lbs.		Bus.	Lbs.		Bus.	Lbs.
1st Sowing	53	9	1st Sowing	38	21	1st Sowing	17	59	1st Sowing	30	26
2nd "	59	18	2nd "	44	9	2nd "	20	30	2nd "	33	57
3rd "	50	25	3rd "	33	26	3rd "	14	8	3rd "	32	48
4th "	45	32	4th "	31	24	4th "	12	12	4th "	29	56
5th "	40	7	5th "	26	3	5th "	10	18	5th "	26	18
6th "	31	30	6th "	23	35	6th "	8	33	6th "	23	46

These results obtained at the Central Experimental Farm at Ottawa, demonstrate most conclusively how important it is that farmers in Ontario and Quebec should sow all their grain crops promptly, and if possible within ten days after the ground—prepared by ploughing in the autumn—is ready for seeding. If this practice were to become universal the average of crops in these provinces would be very much increased.

While the large losses arising from delay in the seeding of grain is fairly well known, the fact that similar losses occur from delay in the sowing of roots has not received the same attention. At the Central Experimental Farm a series of experiments has been carried on for five years with turnips, two sowings being made in each case, one two weeks later than the other. The results have shown an average loss of 8 tons 1293 pounds per acre from delay in seeding.

From a similar series of experiments carried on at Nappan, N.S., for five years, the average loss from delay in sowing was 7 tons 1908 pounds per acre.

With turnips grown at the Experimental Farm at Brandon for the same period the loss from delay in sowing has averaged 6 tons 1615 pounds per acre.

At the Branch Experimental Farms at Indian Head, Assa., and Agassiz, British Columbia, on experiments carried on for a similar time, the average loss has been much less. At Indian Head it has averaged 1630 pounds per acre and at Agassiz 1 ton 1140 pounds per acre.

During a similar series of experiments with mangels carried on for the past five years at the several experimental farms the average loss from two weeks delay in sowing has been as follows:—

	Tons.	Pounds.
At the Central Farm at Ottawa, Ont.	12	125
“ Branch Farm at Nappan, N.S.	5	1468
“ “ “ Brandon, Man.	2	1164
“ “ “ Indian Head, Assa.	1	1538
“ “ “ Agassiz, B.C.	3	527

In similar experiments conducted with carrots for a like period the average loss for five years from delay of two weeks in sowing was:—

	Tons.	Pounds.
At Ottawa, Ont.	3	979
“ Nappan, N.S.	3	666
Brandon, Man.	3	1090
“ Agassiz, B.C.	1	1913

At Indian Head there was an average loss from early sowing amounting to 443 pounds per acre.

In experiments made with sugar beets the average loss from delay in seeding has been as follows:—

	Tons.	Pounds.
At Ottawa, Ont.	8	1660
“ Nappan, N.S.	3	164
“ Brandon, Man.	1	1614
“ Agassiz, B.C.	1	923

In this instance also there was an average loss at Indian Head from early sowing of 828 pounds per acre.

Table of results of early and late seeding at the several Experimental Farms:—

LOSS FROM DELAY IN SOWING.	OTTAWA, ONT.		NAPPAN, N.S.		BRANDON, MAN.		INDIAN HD N.W.T.		AGASSIZ, B.C.	
Average of results for five years.	Tons.	Lbs.	Tons.	Lbs.	Tons.	Lbs.	Tons.	Lbs.	Tons.	Lbs.
Turnips	8	1293	7	1908	6	1615	..	1630	1	1140
Mangels	12	125	5	1468	2	1164	1	1538	3	527
Carrots	3	979	3	666	3	1090	*		1	1913
Sugar Beets	8	1600	3	164	1	1614	*		..	923
Gain per Annum on all Field Roots average of five years	8	514	5	51	3	1371	..	974	1	1626

* In carrots and sugar beets, grown at Indian Head, there has been an average gain from delay in seeding. In carrots 443 pounds per acre and in sugar beets of 828 pounds per acre.

From the above figures it will be seen that the early sowing of field roots is most important at Ottawa, Ont., a locality which may be taken as fairly representing a large part of Ontario and Quebec. At Nappan, N.S., which is representative of the Maritime Provinces, it is also important. In Brandon, Man., the average loss from delay in seeding is quite large. At Agassiz, representing the coast climate of British Columbia, early sowing is less important, while at Indian Head, which may be regarded as within the drier part of the North-West Territories, the advantage gained from the early sowing of field roots has been comparatively small.

The average dates of sowing for the whole period was as follows:—

At Ottawa 1st sowing, May 12; 2nd sowing, May 26.
" Nappan, 1st sowing, May 24; 2nd sowing, June 7.
" Brandon, 1st sowing, May 20; 2nd sowing, June 3.
" Indian Head, 1st sowing; May 20; 2nd sowing, May 29.
" Agassiz, 1st sowing, May 19; 2nd sowing, June 2.

These figures show that there is no very wide variation in the dates most advantageous for the sowing of roots in any of these parts of the Dominion.